

Flathead Basin Commission

EXHIBIT

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DATE

Dec 14, 2013

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2011-2012 Biennial Report



INTRODUCTION



The Flathead Basin Commission (FBC) was created in 1983 by the Montana Legislature to monitor and protect water quality, natural resources and economic well-being in one of the State's most important watersheds. The FBC is a uniquely structured non-regulatory organization that works to accomplish its mandate in a consensus-building manner, stressing education, broad-based community involvement, partnership with agencies and nonprofit groups, and the voluntary participation of basin residents.

The 23 member Commission represents a wide cross-section of citizens, and local, state, tribal, federal and provincial agency representatives who work collectively to implement innovative, cost-effective solutions that work on-the-ground.

The FBC has become a model of successful citizen and inter-agency cooperation in a geographically vast

and ecologically diverse watershed characterized by its overall pristine character, international dimension, and multi-jurisdictional nature.

This report summarizes the FBC's activities and initiatives, and provides an overview of water quality trends.

For more information on the FBC, including updates on activities and basin water quality issues, visit our website at:

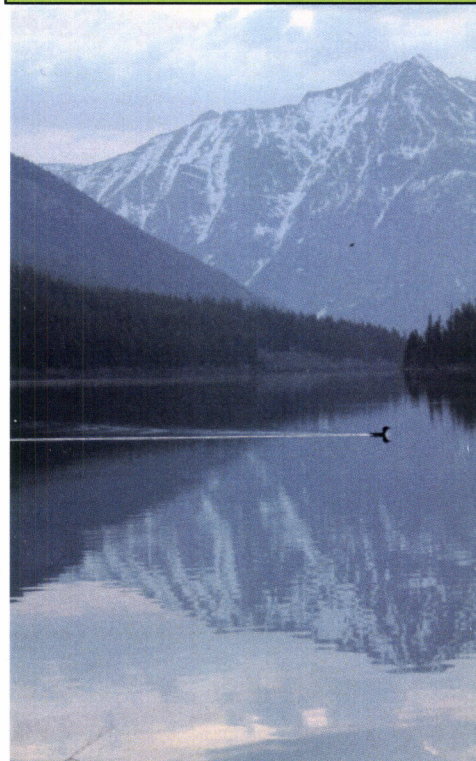
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MESSAGE FROM THE CHAIR



"While the risks may have changed over time, given the multitude of new threats to water quality, the FBC's mission is just as important today as it was when the Commission was originally created."

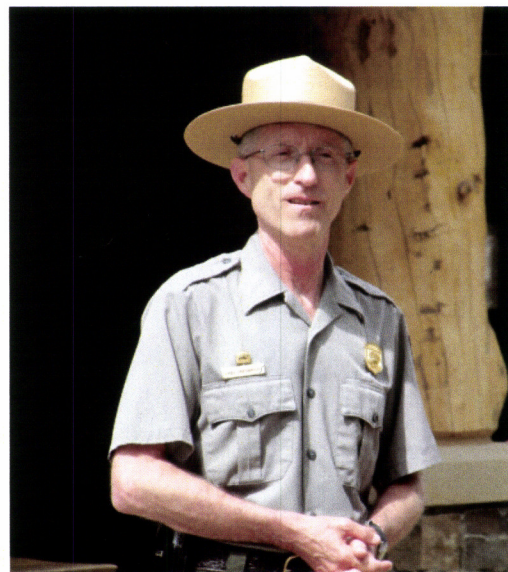
-Chas Cartwright,
FBC Chair

In my work as the Superintendent of Glacier National Park, I work cooperatively with many partnering organizations to accomplish the Park's mandate. However, the unique role, attributes, and composition of the Flathead Basin Commission (FBC) is unlike virtually any other organization that I work with today. Given the FBC's status as a non-regulatory agency, it can reach out to stakeholders and facilitate cooperative efforts in a way that is difficult, if not impossible, for many agencies. In addition, the FBC's broad representation of federal, state, local, tribal and provincial government representatives, along with Governor appointed members, provides us with a unified and powerful voice in striving to meet our goals and objectives. The FBC's position gives us the ability to see the big picture, and facilitate dialogue to enhance cooperative ventures, build upon existing synergies, and leverage resources - demonstrating that the whole is often far greater than the individual pieces.

An example of FBC leadership at the state, regional and local levels is

evident in our work related to Aquatic Invasive Species (AIS) prevention. At the State level, the FBC has worked with its partners and the legislature to facilitate the passage of critically needed AIS legislation. At the regional level, the FBC is working with federal partners, the State of Idaho, the Provinces of British Columbia and Alberta, and the Great Northern Landscape Conservation Cooperative to facilitate regional AIS prevention efforts – efforts that will ultimately protect the resources of both the Flathead Basin and the State of Montana. At the local level, the Flathead Basin is unique in the AIS prevention plan that has been implemented, due in large part to the FBC's efforts to bring all of the stakeholders to the table to contribute what and how they can. The result has been an AIS prevention plan that has exceeded expectations, as the FBC has brought together the entities and resources needed to fill the gaps and build what is shaping up to be a robust AIS prevention program.

The Flathead Basin is an ecological and economic treasure, unique in its natural resources – ranging from Flathead Lake, the largest lake in the U.S. west of the Mississippi, to Glacier National Park. It is therefore fitting that this unique landscape possesses a similarly unique organization expressly tasked with protecting water quality for current and future generations of Montanans.



SUMMARY OF ACCOMPLISHMENTS



Aquatic Invasive Species

- Successfully leveraged over \$600,000 during the past biennium in funding from federal, state, local, tribal and NGOs partners within the basin to implement the Flathead Basin AIS Strategic Plan.
- Continued implementation of the Flathead Basin AIS Strategic Plan, which includes but is not limited to, establishment of boat inspection stations at Ronan, Clearwater Junction and Highway 2 East.
- Working with the Flathead Lakers and Swan Lakers, successfully launched a volunteer boat inspection pilot program in the summer of 2012.
- Facilitated implementation of a treatment plan for curly leaf pondweed at select locations within the Basin, and participated on the team working on Eurasian watermilfoil eradication at Beaver Lake.
- Developed draft MOU and associated Rapid Response Plan for use in the Basin.
- Monitoring and survey work – assisted partners in leveraging funds to survey for veligers and aquatic invasive plants throughout the Basin. Also, see volunteer monitoring program on page 4.
- Continued a variety of education and outreach efforts including, but not limited to: presentations/displays at public events; publication of AIS materials; development of AIS web-based information; and completion of AIS curriculum for high school students.
- Developed innovative solutions at the local level to improve AIS prevention efforts, including but not limited to the development of draft county and tribal AIS ordinances.

Flathead AIS Work Group Members

- City of Polson
- Clark Fork Coalition
- Clearwater Resource Council
- Confederated Salish and Kootenai Tribes
- Flathead Basin Commission
- Flathead Conservation District
- Flathead County
- Flathead Lake Biological Station
- Flathead Lakers
- Flathead National Forest
- Flathead Protection Association
- Glacier National Park
- Lake County
- Lake County Weed District
- Missoula County Weed District
- Montana Department of Agriculture
- Montana Department of Fish, Wildlife and Parks
- Swan Lakers
- U.S. Geological Survey
- U.S. Fish and Wildlife Service
- Whitefish Lake Institute
- Testified in support of AIS legislation during the 2011 legislative session.

The Flathead AIS Work Group makes the Basin AIS program possible. The partners provide the funding for the inspection station at Clearwater Junction; the partners undertook the vast majority of the AIS survey and monitoring work; and the partners commenced treatment programs for aquatic invasive plants at Eagle Bend and Beaver Lake in order to contain their spread to other waters in the Basin. The state provides basic funding, while the partners provide the value-added services that make the program a success.

SUMMARY OF ACCOMPLISHMENTS (cont.)

Monitoring

- Continued ongoing Surface Water Quality Monitoring program, undertaken by partnering organizations.
- Completed Phase I and II Groundwater/Storm water Monitoring studies which documented contamination of both water sources, indicating the need for future management actions at select locations.
- Expanded the Northwest Lakes Volunteer Monitoring Network to include approximately 50 monitoring sites, collecting data for water chemistry, and the presence/absence of AIS plants and mussels.



Working cooperatively with federal, tribal, state, local and NGO partners, the FBC is facilitating the implementation of an AIS prevention plan for the Flathead Basin.

Above: Flowering rush hitching a ride on a boat. To prevent the spread of AIS, boats must be cleaned and drained before launching in other waters.

Transboundary Protection Efforts

- Working through the Great Northern Landscape Conservation Cooperative, commenced initial steps to implement the British Columbia-Montana Memorandum of Understanding on Environmental Protection, Climate Action and Energy (which permanently banned strip mining and oil & gas development in the B.C. headwaters of the Flathead River).
- Working through the Crown Managers Partnership (CMP), commenced a cooperative AIS project to protect water resources in the Crown of the Continent.
- Working through the CMP, continued work on the Ecological Health Project, which is designed to provide resource managers with improved and consistent metrics to enable agencies to make more informed decisions on the ground.

Memorandum of Understanding and Cooperation on

ENVIRONMENTAL PROTECTION, CLIMATE ACTION AND ENERGY

between

The Province of British Columbia

and

The State of Montana



TRANSBOUNDARY EFFORTS: AN INTERNATIONAL WATERSHED

B.C. –MT MOU Moves Forward . . .

In 2010, British Columbia and Montana signed the Memorandum of Understanding and Cooperation on Environmental Protection, Climate Action and Energy (MOU). The MOU sets out a framework for environmental and economic cooperation on clean energy development, and permanently bans mining and oil and gas development in the Transboundary Flathead River, effectively ending a 30-year conflict over B.C.'s proposals to strip mine in the headwaters of the Flathead River.



During this biennium, the FBC has worked with its partner, the Great Northern Landscape Conservation Cooperative (GNLCC), to participate in the process to implement the first Phase of the MOU which will focus on

the protection and improvement of the transboundary fisheries for bull trout and cutthroat trout, and the development of a transboundary prevention plan for Aquatic Invasive Species (AIS). Working through the

GNLCC and other convening entities, the FBC will continue to work with B.C. to improve our collective transboundary resources.

The MOU did much more than ban strip mining in the headwaters of the British Columbia Flathead. It also provided a framework for cooperative energy development as it calls for both governments to “support policies, and share information on standards and best practices to promote biofuels, natural gas, hydrogen, and electricity as transportation fuels.”



TRANSBOUNDARY EFFORTS (cont.)

AN INTERNATIONAL WATERSHED

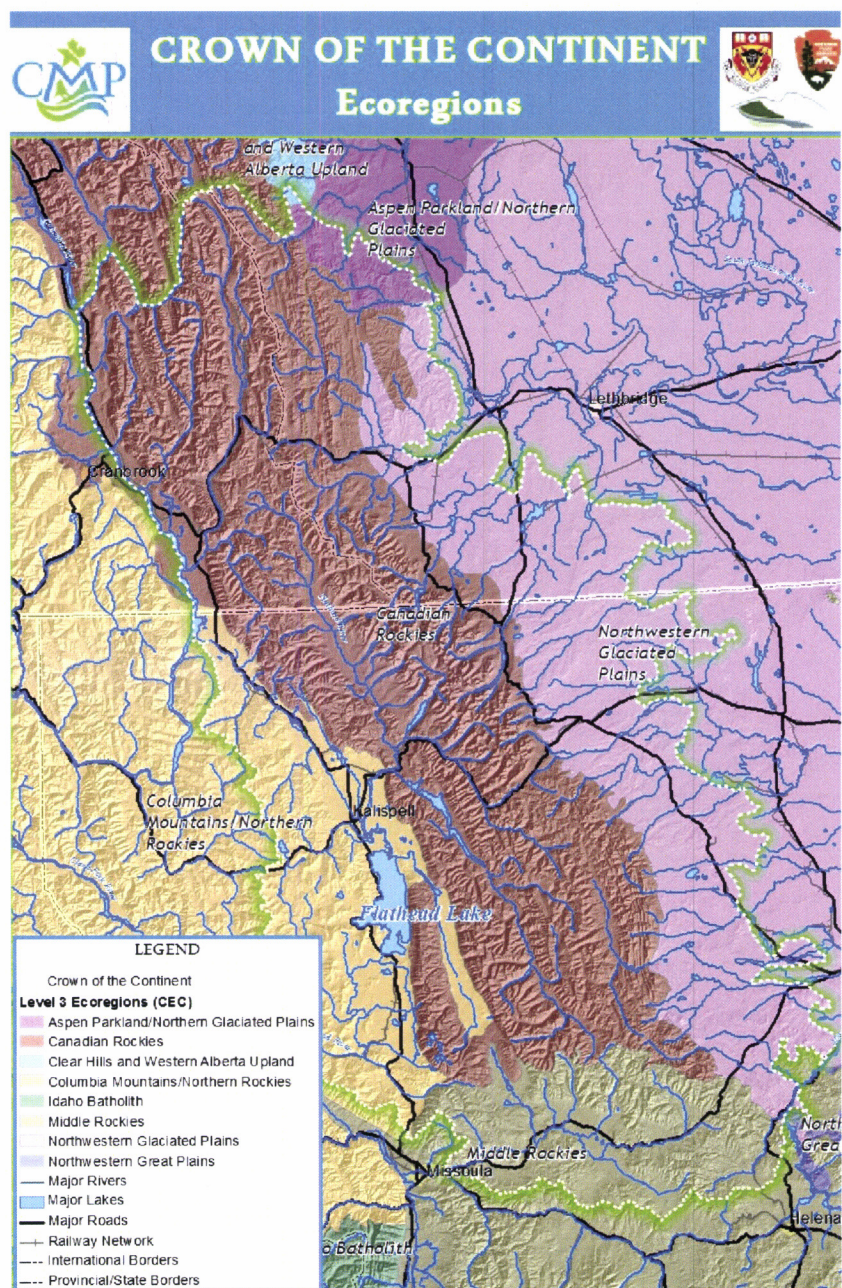
Crown Managers Partnership (CMP)

The Crown of the Continent (COC) is one of North America's most ecologically diverse and jurisdictionally fragmented ecosystems. Encompassing the shared Rocky Mountain region, and immediately adjacent landscapes of Montana, British Columbia and Alberta, this 28,000 square mile region straddles two federal governments; one state and two provinces; multiple Tribal/First Nation sovereign governments; municipal authorities; and both public and private land blocks. However, despite these jurisdictional divisions, there also exists a long history of cooperation in this region, starting from the time Waterton-Glacier became the world's first peace park in 1932.

Since the creation of the Waterton-Glacier Peace Park, pressures on the COC have continued to mount. In response to these pressures, in 2001 land and resource managers from Alberta, Montana and British Columbia agreed to collaborate on selected ecosystem management issues in order to better protect shared resources in the COC. Hence, the CMP was established to demonstrate leadership in addressing environmental management challenges that cross jurisdictional borders, including but not limited to: fire management, invasive terrestrial and aquatic species, fisheries management, air and water quality, etc. While the CMP does not manage (the individual agencies manage), this voluntary partnership seeks to build a common awareness of COC interests, build cooperative relationships, and identify collaborative and complimentary tasks that the various

participating agencies can pursue to meet common objectives. The FBC serves on the CMP Steering Committee and is involved in several CMP initiatives including the development of an AIS prevention plan for the COC; the CMP annual forum which focuses on information sharing and interagency cooperation; and the CMP Ecological Health

Project. The CMP is also in discussions with the GNLCC to assist with the implementation of select components under the B.C.-Montana MOU (see page 5). During the next biennium, the CMP will continue to work to bring many of its key projects to fruition, thereby protecting our common resources for all Montanans.



STATE OF THE LAKE:

UPDATE ON WATER QUALITY IN FLATHEAD LAKE FOR THE 2011 WATER YEAR

Bonnie K. Ellis, Flathead Lake Biological Station, The University of Montana, Polson, MT.

The Biological Station has carefully documented the status of water quality in Flathead Lake and its tributaries since the Station was founded in 1899. In the early days, studies were periodic. Since 1977, measures have been obtained about monthly by the Biological Station using standardized protocols. These studies have been the technical background for development of a Total Maximum Daily Load (TMDL) allocation for the purpose of managing nutrient loads reaching Flathead Lake. Based on Station research, the Flathead Basin Commission (FBC) recommended the following interim targets for the protection of water quality in Flathead Lake:

- 1) no increase in the biomass of lakeshore periphyton (figure 1),
- 2) no measurable blooms of *Anabaena flos-aquae* (or other pollution algae),
- 3) no declining trend in oxygen concentrations in the hypolimnion, and
- 4) average annual concentrations of the following variables in the photic zone of the Midlake Deep site in Flathead Lake will not exceed the values indicated:

- * chlorophyll *a* - 1.0 $\mu\text{g/L}$ (1 microgram per liter)

- * primary production - 80 $\text{g C m}^{-2} \text{ yr}^{-1}$ (80 grams of carbon per square meter per year)

In the 2011 water year (WY; October 1, 2010 – September 31, 2011), periphyton biomass (algae growing on rock surfaces at a depth of 5 m) was within the range of values reported since monitoring began in 1999 (Figure 1). Mean periphyton biomass at the “B” Beach site was the lowest ever recorded for that site and was very similar to the mean for

Flathead Lake Periphyton

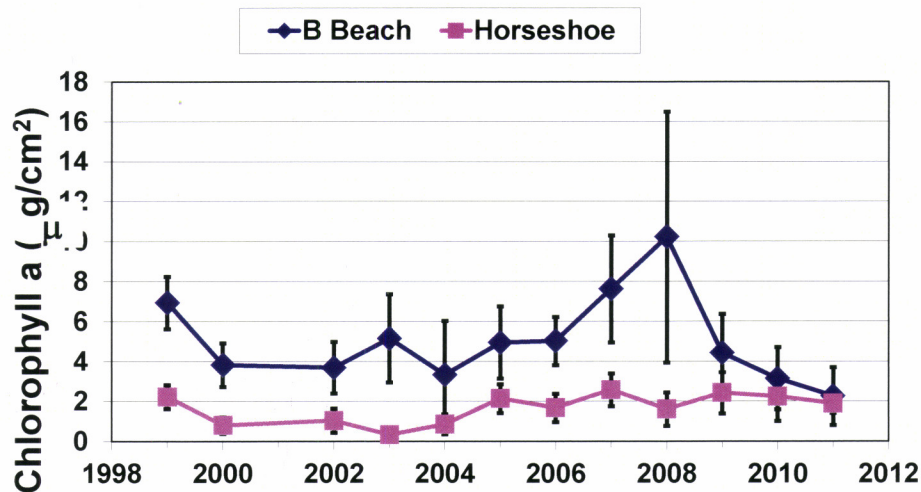


Figure 1. Mean periphyton biomass as chlorophyll *a* ($\mu\text{g cm}^{-2}$) ± 1 standard deviation at 5 m depth in August of each year at the two long-term monitoring sites on Flathead Lake.

the Horseshoe site. There was no significant trend in periphyton biomass at “B” Beach for the period of record (1999–2011) but a statistically significant increasing trend at the Horseshoe site. No visual evidence of an algal bloom was detected in the summer and fall of 2010 or 2011, but qualitative assessment will have to be confirmed after enumeration of surface phytoplankton samples. Additional funding is warranted to examine possible factors that cause the toxic blue-green *Anabaena* to flourish in certain years, to gain insight into the conditions that favor the growth of this noxious species. The dissolved oxygen target was not met as the long-term trend of declining oxygen in the bottom waters remains significant. In WY 2010 and 2011, instrumentation equipped with a dissolved oxygen sensor was deployed 30 times from the Jessie B research vessel. Those

manual measures indicated that percent oxygen saturation approximately 1 m from the bottom at the long-term Midlake Deep monitoring site dropped to a low of 80% and 86% in 2010 and 2011, respectively. However, since late 2011 the Flathead Lake Biological Station has been measuring dissolved oxygen concentrations a few meters from the bottom 4–6 times a day. Two new instrumented buoys now relay data (via satellite) near real-time thus improving our ability to detect periods of low oxygen throughout the late summer and fall. The buoys are located at the long-term Midlake Deep monitoring site west of Yellow Bay and at another site in the deep trench west of Woods Bay called Midlake North. The oxygen sensor on the automated profiler indicated that dissolved oxygen saturation a few meters off the bottom dropped to 77.5% at the Midlake Deep site in 2012. All weather and underwater profiler data can be viewed at: <http://www2.umt.edu/flbs/AboutFLBS/Weather.aspx>

STATE OF THE LAKE (cont.)

UPDATE ON WATER QUALITY IN FLATHEAD LAKE FOR THE 2011 WATER YEAR

The WY 2011 annual mean total nitrogen concentration was above the long-term average for the Midlake Deep site while total phosphorus was below the long-term average (Figure 2). The mean midlake concentration of total nitrogen ($125 \mu\text{g L}^{-1}$) was identical to

that measured for WY 2010 and values for those two years represent the highest annual means recorded for integrated 0–30 m water samples since integrated sampling of the photic zone began in WY 1988. The mean nitrate nitrogen concentration was slightly above the long-term

average. Water year 2011 means for the other analytes (i.e., chlorophyll *a*, soluble reactive phosphorus, ammonium nitrogen) were quite similar to the long-term (1988–2010) annual means.

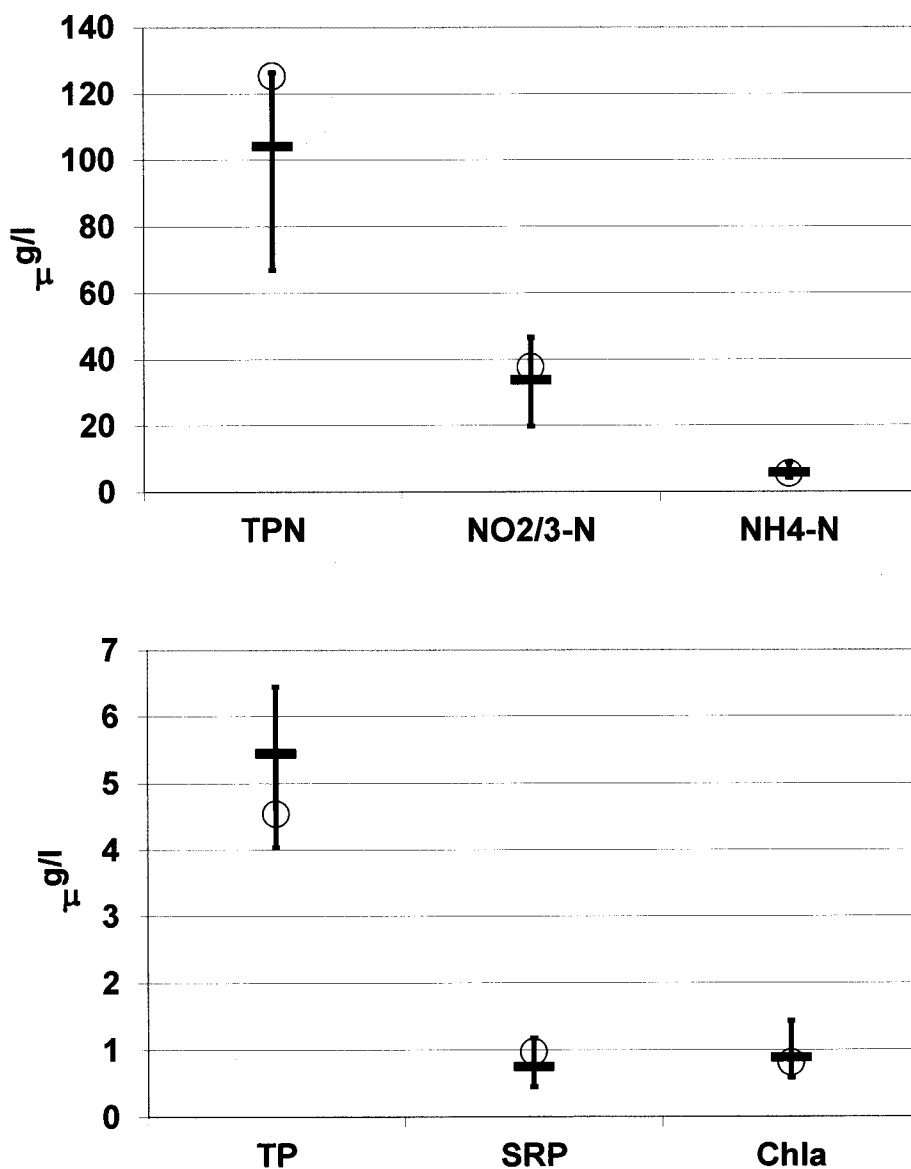


Figure 2. Long-term annual mean (thick bar) and range of annual means (thin bars) for nutrient and chlorophyll *a* concentrations of 0–30m integrated samples collected from 1988 to 2010 at the Midlake Deep site on Flathead Lake. Integrated means were calculated for each water year (i.e., October 1–September 30). Integrated mean concentrations for the 2011 water year, October 1, 2010 to September 30, 2011, (circles) are also presented for comparison.

STATE OF THE LAKE (cont.)

UPDATE ON WATER QUALITY IN FLATHEAD LAKE FOR THE 2011 WATER YEAR

In WY 2011, the average annual chlorophyll *a* concentration did not exceed the TMDL target of $1 \mu\text{g L}^{-1}$ (see Figure 2). The annual rate of primary production at the Midlake Deep monitoring site in WY 2011 was $95 \text{ g C m}^{-2} \text{ yr}^{-1}$ (Figure 3), a value that was somewhat lower than the post-*Mysis* mean of $99 \text{ g C m}^{-2} \text{ yr}^{-1}$, but exceeded the TMDL target by 19%. With the exception of water years 1994 and 2008, annual primary productivity in Flathead Lake has been at least 10% greater than the FBC target since 1989, and in 1998 exceeded the target by 55%. This target variable requires understanding of food web dynamics and cannot be interpreted independent of those dynamics. Funding is actively being sought for refinement of a food web model for Flathead Lake aimed at understanding the dynamics of foodweb interactions and the linkages of increasing nitrogen in the catchment and lake response

variables, such as primary productivity. Dramatic alteration of the composition of at least 3 trophic levels (e.g., fish, zooplankton and algae) of the lake food web occurred during the establishment of *Mysis diluviana* in the mid to late 1980s (Ellis et al. 2011). This essentially resulted in a lake with a different biological community which has likely altered nutrient cycling. Given the influence of the changing food web on lake response variables (e.g., primary productivity, chlorophyll *a*) we recommend that TMDL targets be revised to reflect trends for the post-*Mysis* period only. There are also many indirect effects that are the consequence of the establishment of *Mysis* in Flathead Lake and those interactions are complex. Additional funding is being actively pursued to model the changes that have occurred in the food web and its effect on the TMDL target parameters.

Maintaining clean, clear water is a quality of life issue for Montana. We cannot know conditions without accurate measurements taken routinely year after year. Government support for monitoring has been drastically reduced during the last decade. A fund to help continue the necessary level of sampling to assess trends in water quality for Flathead waters was established by the Flathead Lake Biological Station, the Flathead Protection Association and others a few years ago and in 2011, an anonymous local donor agreed to match dollar for dollar all funds raised up to \$1 million over a period of three years. The match will be endowed thus supplementing limited government funding and providing long-term support for water quality monitoring of Flathead Lake and many basin tributaries. Continuing these monitoring efforts is essential to ensure that the Flathead Lake of the future is as spectacular as the

one that we enjoy today.

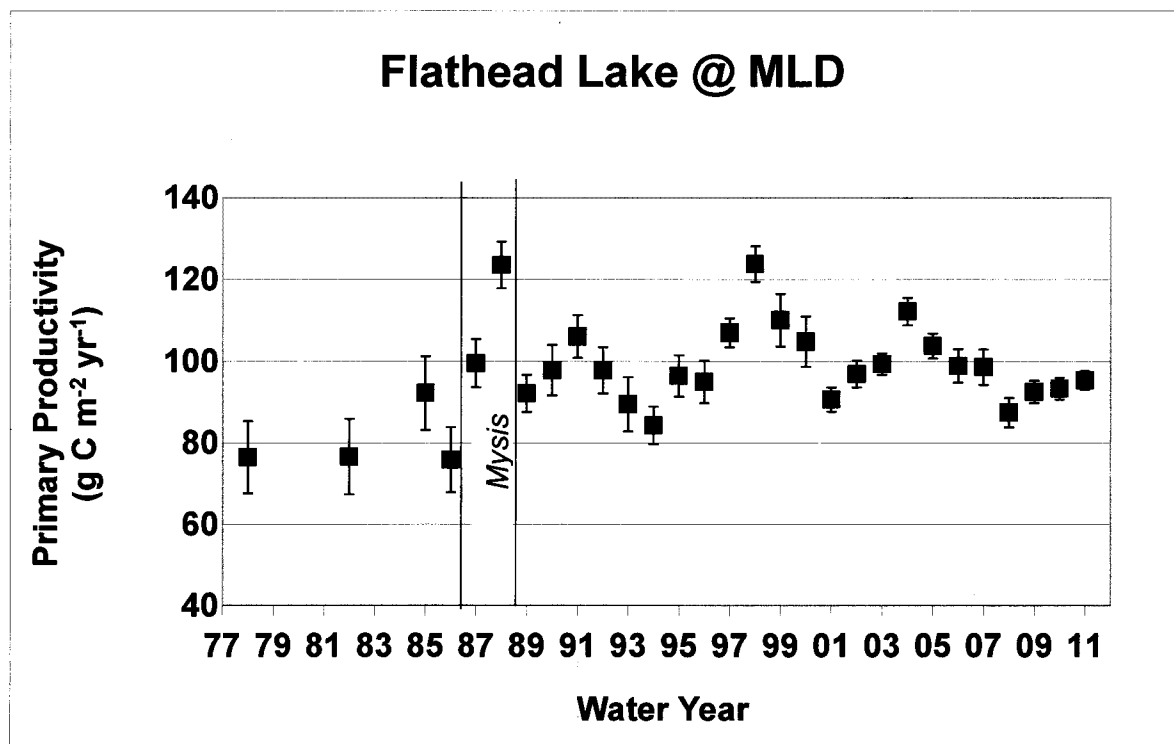


Figure 3. Mean annual pelagic primary productivity ($\text{g C m}^{-2} \text{ yr}^{-1}$) at the Midlake Deep site for Flathead Lake from 1978 to 2011. Bars represent minimum and maximum yearly estimates.

Assessment of Groundwater Pollutants and Contaminants in the Shallow Aquifer of the Flathead Valley Kalispell, Montana

Tyler H. Tappenbeck and Bonnie K. Ellis, Flathead Lake Biological Station

The shallow alluvial aquifer in the Flathead Valley is bound by the fluvial geomorphology of the Flathead River to the east and the Whitefish River to the west. Subsurface water flows generally in a north to south direction at an average rate of 10 cm/s. The Flathead River recharges the aquifer at the head of the valley and the aquifer discharges water into the river in progressively greater volumes as it moves down the valley. The connectivity between the surface and subsurface waters is so great that invertebrates from the river are able to travel underground through the interstitial spaces up to 2 km away from the Flathead River. The high movement of water through the aquifer, its hydraulic connectivity with rivers and streams within the basin and the shallow nature of the aquifer make it vulnerable to several potential sources of surface (e.g., urban and agricultural runoff) and subsurface (e.g., septic system effluents and underground storage tanks) pollution and contamination. The groundwater in the shallow alluvial aquifer has social and ecological importance, as it provides drinking water for many valley residents and many pollutants and contaminants are detrimental to humans and unique riverine and groundwater organisms. The health of our rivers and streams is contingent upon the discharge of clean water from the aquifer.

In the fall of 2009 through the spring of 2011, we conducted a broad-spectrum analysis of the presence and concentration of a variety of groundwater pollutants and contaminants in 21 residential drinking water and 9 groundwater

monitoring wells throughout the shallow alluvial aquifer of the Kalispell Valley. We also sampled 7 storm water outfall sites during a spring 2011 rainstorm. The primary objective of this study was to provide baseline data for future monitoring efforts and research on how various pollutants and contaminants move through and affect surface and ground water ecosystems. The analytes selected for study, ranged from nutrients (i.e., nitrogen and phosphorus), chloride (Cl) and sulfate (SO₄), to semi-volatile and volatile organic compounds (sVOC and VOC), metals, polychlorinated biphenyls (PCB), endocrine disrupters/ pharmaceutical and personnel care products (EDC/PPCP) and coliform bacteria (see 2010 and 2011 reports by Tappenbeck and Ellis for full list of analytes).

We detected sVOC in 15 out of 31 wells (i.e., shallow ground water) and 6 out of 7 storm water outfall sites (i.e., storm water runoff). Twenty-three different sVOC were found in wells and 9 different sVOC compounds in storm water. Most sVOC that were detected are considered carcinogenic by the Montana Department of Environmental Quality (MDEQ). VOC detections were less common and were only detected in 3 wells and at 1 storm water outflow site and are

considered either toxic or carcinogenic by MDEQ. No PCB were detected in wells or storm water sites.

A total of 9 different EDC/PPCP were detected in 17 out of 31 wells sampled and included bisphenol A, carbamazepine, oxybenzone, sulfamethoxazole, acetaminophen, progesterone, sulfamethazine, caffeine, warfarin, and DEET. Total coliform bacteria were detected in 9 out of 31 wells and all storm water outflow sites. *Escherichia coli* was not detected in any well but was detected in all storm water sampling sites. This report is the first of its kind to investigate sVOC, VOC and PPCP in the shallow aquifer in the Kalispell Valley and provides insight into the extent of organic and inorganic pollutants/contaminants present in shallow groundwater and residential drinking water wells.

Flathead Lake Biological Station Research Scientist Tyler Tappenbeck collecting an EDC/PPCP sample from a shallow residential drinking water well in Kalispell, MT.



FLATHEAD BASIN COMMISSION IN ACTION: AQUATIC INVASIVE SPECIES

Flathead Basin AIS Strategic Plan: In 2010, the Flathead Work Group, under the leadership of the FBC, completed the Strategic AIS Plan for the Flathead Basin. The Plan called for a number of tools to be deployed to guard against the introduction of invasive species such as zebra and quagga mussels. One of the key recommendations of the Plan was the establishment of boat inspection stations at the gateways into the Flathead Basin. In 2011, the FBC worked to secure the funding and staffing for a FWP inspection station at Ronan, which was the Basin's highest priority site given the boat traffic coming from southwest states. However, in 2011, FWP did not possess the funding for a boat inspection station at the Basin's second priority gateway site – Clearwater Junction. To fill this programmatic gap, the FBC worked with its partners to identify funding opportunities. In 2011, the FBC was able to facilitate the transfer of funds from the U.S. Forest Service (Flathead National Forest) to FWP in order to

fund the Clearwater Boat Inspection Station, which became operational in the later part of 2011. This year, working with our partners at Hungry Horse/Bureau of Reclamation and the City of Whitefish, we have obtained partial funding to staff the Basin's third priority site – Highway 2 East -- commencing in 2013. The heightened AIS prevention effort in the Flathead demonstrates the commitment of its stakeholders, and is only possible through the contributions of federal and local partners, and the willingness of FWP to collaborate on cooperatively funded inspection stations.

Leveraging Resources: Working with its partners, the FBC has successfully leveraged over \$600,000 during the past biennium for the AIS prevention effort in the Flathead Basin. Examples of contributions from stakeholders, include but are not limited to:

- \$40,000 from the U.S. Forest Service for the staffing at the Clearwater Junction Boat

Inspection Station.

- \$30,000 from Hungry Horse (BOR) and the City of Whitefish to support the Highway 2 East Inspection stations.
- \$200,000 from Glacier National Park for its AIS boat inspection program.
- Over \$100,000 secured for the AIS consultant for a variety of work in the basin, including:
 - AIS plant surveys
 - AIS veliger monitoring
 - AIS education and outreach
 - AIS inter-jurisdictional coordination
 - AIS Rapid Response Planning
 - AIS Emergency Response

Funding partners for the AIS consultant include: FBC, DNRC, MT Dept. of Agriculture, FWP, Lake County, Clark Fork Coalition, Flathead Lakers, Swan Lakers, Whitefish Lake Institute, Flathead Protection Association and Flathead Conservation District.



AIS consultant Erik Hanson trains a group of Flathead Lakers volunteers to inspect boats as part of the volunteer boat inspection program. The pilot program opened the summer of 2012 at two boat launches and is expected to expand in 2013.

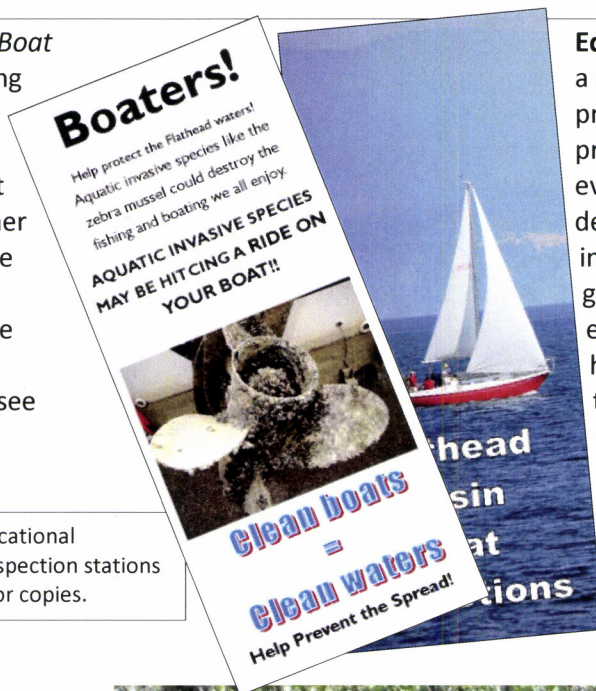
FLATHEAD BASIN COMMISSION IN ACTION (cont.)

AQUATIC INVASIVE SPECIES

Volunteer Programs: *Volunteer Boat Inspection Pilot Program:* Working with the Flathead and Swan Lakers, the FBC spearheaded an effort to launch a volunteer boat inspection program in the summer of 2012. Given the success of the program, it is expected that the program will be expanded for the 2013 field season.

Volunteer Monitoring Program: see page 13.

The FBC has helped make educational brochures available at boat inspection stations basin-wide. Contact the FBC for copies.

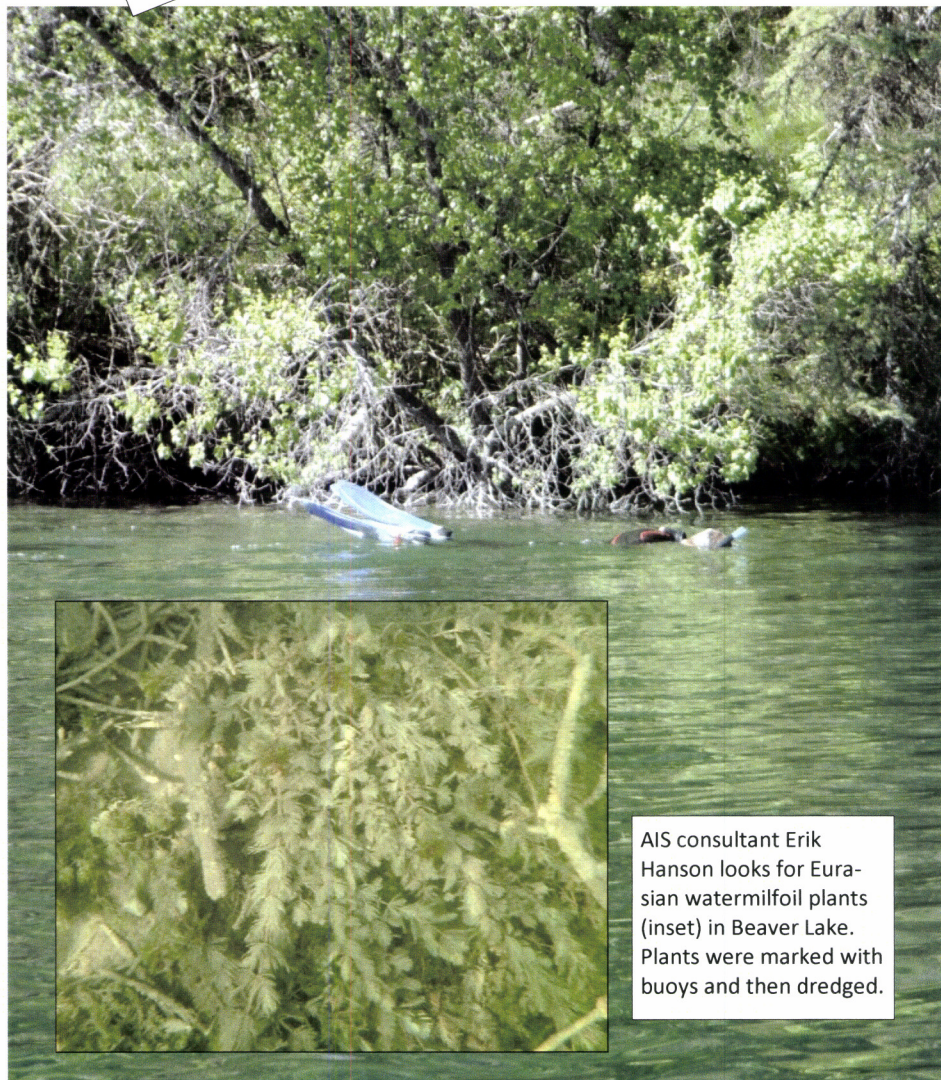


Education efforts: Outreach has been a cornerstone of the Basin-wide AIS prevention effort, and includes presentations and displays at public events; publication of AIS materials; development of AIS web-based information for key stakeholders groups (i.e boaters, tourism industry, etc.); completion of AIS curriculum for high school students; and working through the CMP, the development of an AIS guide for use by both agency personnel and the public.

Collaborative Partnerships: The FBC facilitated the development of work teams to tackle specific issues in the Basin, such as the treatment of curly leaf pondweed at the Eagle Bend Marina in Big Fork. The FBC also participated in and provided technical expertise to the Flathead County team focused on eradication of Eurasian Water Milfoil (EWM) at Beaver Lake. Working through the Crown Managers Partnership (CMP) (the FBC serves on the CMP Steering Committee) AIS mapping is being undertaken for the entirety of the Crown, and will be used to better protect resources at risk.

Innovative Tools: The FBC facilitated the development of:

- a draft MOU and associated Rapid Response Plan for use in the Basin; and
- draft county and tribal AIS ordinances to improve AIS prevention efforts.



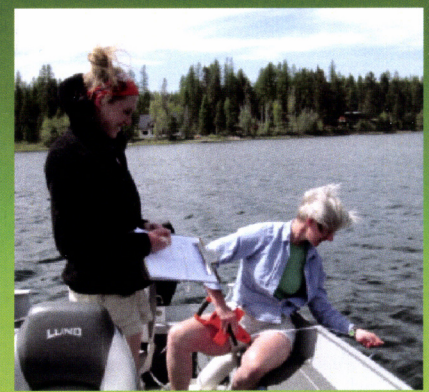
AIS consultant Erik Hanson looks for Eurasian watermilfoil plants (inset) in Beaver Lake. Plants were marked with buoys and then dredged.

FLATHEAD BASIN COMMISSION IN ACTION (cont.)

VOLUNTEER MONITORING

Volunteer Monitoring Program: The Northwest Montana Lakes Volunteer Monitoring Network utilizes volunteers to collect water quality data at approximately 50 monitoring sites within and adjacent to the Flathead Basin. The importance of this program to the ongoing TMDL modeling effort, and to our basic knowledge of water quality conditions, is critical since for many of the lakes being monitored, the data collected via the Program is the only known data currently available. In addition, beginning in

2011, the Program began to collect AIS data for all of the lakes in the program, and now includes sampling for the presence/absence of zebra/quagga mussels. At select locations, sampling is also undertaken for aquatic invasive plants. The Program, which is housed in the Whitefish Lake Institute (WLI), provides an example of an innovative and collaborative approach to water quality monitoring in a time of fiscal austerity as it combines funding from the FBC, Fish Wildlife and Parks, and the WLI to cover all program expenses .



Carol Treadwell-Steitz and Intern Meagan Powell monitor Blanchard Lake near Whitefish .



FLATHEAD BASIN COMMISSION IN ACTION (cont.)

SURFACE WATER QUALITY MONITORING

Surface Water Quality Monitoring:

The FBC's *Flathead River Basin Long-Term Surface Water Quality and Supply Monitoring Plan*, provides a framework for determining long-term base-line conditions and changes in water quality (i.e, physical, chemical and biological) of the Flathead River Basin. The goals of the Plan are to:

- Guide acquisition of necessary water quality data and information using proven protocols and methodologies;
- Identify long-term trends in water quality; and
- Provide crucial information for sound planning and policy decisions that will protect water quality in the

Basin and meet prescribed Total Maximum Daily Load (TMDL) targets.

In order to implement this Plan, the FBC works with many partners responsible for monitoring water quality and other ecosystem parameters within the Basin. These partners include: the Flathead Lake Biological Station, the U.S. Geological Survey, the Confederated Salish and Kootenai Tribes, the MT Department of Natural Resources and Conservation, MT Department of Fish, Wildlife and Parks, MT Department of Environmental Quality, Lake County, Flathead County, the Bureau of Reclamation,

the Bonneville Power Administration, US Environmental Protection Agency, Flathead National Forest, National Park Service, and the British Columbia Ministry of the Environment. However, given recent funding cutbacks, dollars for monitoring are now in short supply, and many of the sites that have been monitored for decades are no longer being sampled. Additional funding is needed to fill this funding gap to ensure that water quality trend data continues to be available to managers, thereby enabling them to make sound decisions that protect our most critical resource – water.



APPENDIX A: BUDGET

FY 2011

Personal Services	\$76,365
Operating Expenses	\$19,863
Total:	\$96,228

FY 2012

Personal Services	\$79,861
Operating Expenses	\$21,692
Total:	\$101,553

Grants/Contracts Managed during the Biennium:

BC Action Plan	\$300,000
Phase I Groundwater	\$25,000
Phase II Groundwater	\$100,000
TMDL grant	\$18,000
Dept of Agriculture	\$8,000
Total:	\$451,000

Donations Expended during the Biennium: **\$9,380**

Leveraged funding secured during the Biennium for AIS: **\$600,000**

Leveraging Resources: With a base budget of \$100,000, the FBC has been able to directly raise over \$450,000 for the programs described herein. In addition, we have been able to assist agencies/governments in leveraging funds in excess of \$600,000 to support work critically need in the Basin. The modest invest in the FBC pays significant dividends.

The Flathead Basin Commission would like to thank the State Legislature for its support. We would also like to thank all of the individuals and organizations that provide funding and invaluable in-kind assistance. Without such support our work would not be possible.

APPENDIX B: FLATHEAD BASIN COMMISSION MEMBERS

Dan Bangeman
Supervisor
Flathead Conservation District

Tom Bell (Ex-Officio)
Regional Manager of Environmental Stewardship, Parks and
Protected Areas Ministry of Environment
British Columbia, Canada

Susan Brueggeman
Director
Lake County Environmental Health Dept.

Chas Cartwright, FBC Chair
Superintendent
Glacier National Park

Jasmine Courville-Brown
Governor Appointed Member
Ronan, Montana

Julie Dalsoglio (Ex-Officio)
Office Director, Montana
Region 8, U.S. Environmental Protection Agency

Steve Frye
Area Manager
Montana Dept. of Natural Resources and Conservation,
Northwest Land Office

Pam Holmquist
Flathead County Commissioner
Flathead County

Kate Hunt
Governor Appointed Member
Creston, MT

Rich Janssen
Department Head
Natural Resources Dept. – Div. of Environmental Protection
Confederated Salish and Kootenai Tribes

Jon H. Jourdonnais (Ex-Officio)
Manager of Hydro Licensing and Compliance
Pacific Power & Light

Joe Lamson (Ex-Officio)
Deputy Director
Montana Dept. of Natural Resources and Conservation

George Mathieus (Ex-Officio)
Administrator
Montana Department of Environmental Quality

Jan Metzmaker
Governor Appointed Member
Whitefish, Montana

Dennis Philmon (Ex-Officio)
Superintendent, Hungry Horse Dam
U.S. Bureau of Reclamation

Jack Potter
Governor Appointed Member
Columbia Falls, Montana

Mark D. Reller (Ex-Officio)
Montana Liaison
Bonneville Power Administration

Jim Satterfield (Ex-Officio)
Division Regional Supervisor
Montana Department of Fish, Wildlife and Parks

Jim Simpson
Supervisor – Board Chair
Lake County Conservation District

Thompson Smith, FBC Vice Chair
Governor Appointed Member
Charlo, Montana

Margaret Sogard
Governor Appointed Member
Bigfork, Montana

Mike Volesky
Policy Advisor for Natural Resources
Office of the Governor, Montana

Chip Weber
Supervisor
Flathead National Forest

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Bears—Glacier National Park
Page 10: Flathead Lake Biological Station
Page 11: Christi Buffington, Flathead Lakers
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